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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,632	11/20/2003	Kazufumi Sato	2003_1687	6339

513 7590 10/19/2005

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WASHINGTON, DC 20006-1021

EXAMINER

CHU, JOHN S Y

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,632

Applicant(s)

SATO ET AL.

Examiner

John S. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/521,205.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the amendment filed August 5, 2005.

1. The rejection under 35 U.S.C. 103(a) over HATAKAYAMA et al (5,750,309) is **withdrawn** in view of the amendment and arguments by applicant. The now claimed ratio of the maximum weight-average molecular weight to the minimum molecular weight is outside the disclosed ratio as recited in HATAKEYAMA et al. (1.3 as claimed to the disclosed 1.5).
2. New grounds for rejection are made below:

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 7 and 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WATANABE et al (5,624,787).

The claimed invention is now drawn to the following:

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1. (Currently Amended) A chemical-amplification positive-working photoresist composition which comprises, as a uniform solution in an organic solvent:

(A) a polyhydroxystyrene-based resinous ingredient of which the hydroxyl groups are partly substituted by acid-dissociable substituent groups capable of being dissociated by interacting with an acid; and

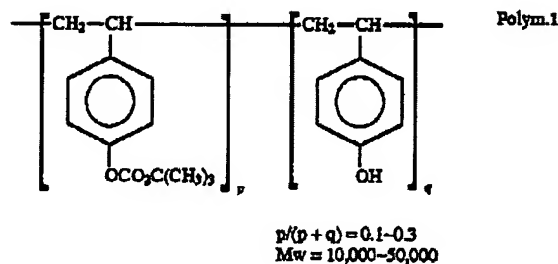
(B) a radiation-sensitive acid-generating compound capable of releasing an acid by irradiation, said acid-generating agent being selected from the group consisting of diazomethane compounds and onium salt compounds of which the anionic counterpart is a C₁-C₁₅ halogenoalkylsulfonate anion,

the resinous ingredient as the component (A) being a combination comprising (A1) a first polyhydroxystyrene resin substituted for from 30 to 60% of the hydroxyl groups by tert-butoxycarbonyl groups and (A2) a second polyhydroxystyrene resin substituted for from 5 to 20% of the hydroxyl groups by tert-butoxycarbonyl groups which are the same as in the first polyhydroxystyrene resin (A1), wherein the ratio of the maximum weight-average molecular weight Mw_{max} to the minimum weight-average molecular weight Mw_{min} in the first and second polyhydroxystyrene resins (A1) and (A2) is smaller than 1.5:1, and the weight proportion of said first and second polyhydroxystyrene resins (A1) to (A2) is in the range of 1:9 to 9:1, and

(C) an amine compound.

The claimed invention now as recited disclose two polyhydroxystyrene resins used in the chemically amplified positive-working photoresist composition wherein the resins are so close in property characteristics that the composition as a whole can be interpreted and anticipated to be a single polyhydroxystyrene resin with acid-dissociable groups with in the composition.

URANO et al discloses a single polyhydroxystyrene resin as seen in column 9, lines 1-13 and attached here:



the polymer has a substitution ratio

of 10 – 30 % which falls within the claimed polymer blend as claimed if the first resin has a substitution ratio of 30% and the second has a ratio of 10%. The blended resins would yield a

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single polymer blend having a polyhydroxystyrene of 20% and be met by the disclosed photoresist composition of WATANABE et al.

Further the examples found in Table 1, column 11 and 12, lines 1-42 anticipate the claimed polymer blend as recited based on the interpretation by the examiner.

Alternatively the prior art reference may be seen not to anticipate the claimed invention so the reference would be seen to meet the properties as recited because only one resin is used, however that single resin would meet the combined properties of the blend because the blend as claimed virtually recites two resin which are almost identical and if blended would yield the same properties as a single resin.

It would have been *prima facie* obvious to one of ordinary skill in the art of photoresist composition to duplicate the claimed invention of WATANABE et al for a single polyhydroxystyrene resin which would render obvious the claimed properties as recited for the blend of two similar polyhydroxystyrene resins and reasonably expect same or similar results with respect to excellent sensitivity, excellent resolution, excellent pattern profile and post-exposure bake stability.

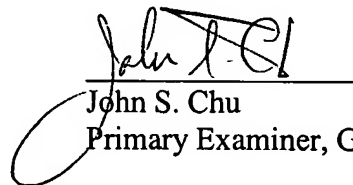
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

The fax phone number for the USPTO is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John S. Chu
Primary Examiner, Group 1700

J.Chu
October 17, 2005